



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/125,128

08/11/1998

YUICHIRO IGUCHI

1084-98

7453

35811 7590 09/11/2007  
IP GROUP OF DLA PIPER US LLP  
ONE LIBERTY PLACE  
1650 MARKET ST, SUITE 4900  
PHILADELPHIA, PA 19103

EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1762

MAIL DATE

DELIVERY MODE

09/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/125,128	IGUCHI ET AL.	
	Examiner	Art Unit	
	Jimmy Lin	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 158-160 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 158-160 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 158 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recites "a paste applicator positioned above the substrate for *one of red, green, or blue phosphor paste* such that the phosphor paste continuously flows downwardly from all of the holes for *each color* of the phosphor paste" (emphasis added by Examiner). The claim contains inconsistencies that render it indefinite because it is unclear if the claim requires only a single color phosphor or phosphors of more than one color.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1762

5. Claims 158-160 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanto et al. (JP 63-155527) in view of Iguchi et al. (JP 08-162019, as provided by Applicant) and Yoshiba et al. (U.S. Patent No. 5,776,545).

Nanto teaches a method of spraying a phosphor between barrier ribs of a gas discharge panel (abstract; Fig. 3). The phosphor is sprayed through nozzles. The nozzles are interpreted to be the claimed outlet hole.

Nanto does not explicitly teach that the applicator has 640 to 2000. However, Nanto does teach that multiple nozzles may simultaneously spray the three primary colors, or may be arranged so as to spray the same color with equivalent spacing (partial translation by the USPTO of the '527 Japanese document, pg. 2, right-hand column, 5<sup>th</sup> paragraph; see also Fig. 3). Nanto recognizes the use of multiple nozzles for the application of a single color or all three primary colors (i.e., red, green and blue). Additionally, one of ordinary skill in the art would have recognized that using multiple nozzles would have deposited phosphor with much greater efficiency. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used multiple nozzles, including the claimed range of nozzles, in the ink-jet deposition of Iguchi with a reasonable expectation of success. One would have been motivated to do so in order to have increased throughput and reduced manufacturing costs. Moreover, it is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced (see MPEP 2144.04.VI.B.). It should be noted that these claims are not commensurate in scope with the showing of unexpected results.

Nanto does not explicitly teach that the gas discharge panel is a plasma display or that the ejected phosphor contains a phosphor powder and an organic compound. However, Iguchi teaches that it was well known to have applied a phosphor paste via a nozzle between barrier ribs of a plasma display (abstract; Figs. 1B-1C). The phosphor paste comprises of a phosphor powder and an organic binder [0018]-[0020]. The phosphor layer is then heated [0027]. Because Iguchi teaches that it was well known to have deposited phosphor paste through a nozzle to manufacture a plasma display, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the method of Nanto to have formed a phosphor layer for a plasma display. Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a phosphor powder and an organic binder as the

Art Unit: 1762

particular phosphor paste of Nanto and to have heated the phosphor layer with a reasonable expectation of success because Iguchi teaches that such methods are known in the art of phosphor deposition. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Nanto and Iguchi do not explicitly teach that the average diameter of the outlet holes is 10 to 500  $\mu\text{m}$ . However, Iguchi does teach that plasma cell pitch can be 120  $\mu\text{m}$  [0035]. One of ordinary skill would have recognized that using a nozzle diameter greater than the cell pitch would have applied the phosphor to an adjacent cell, thereby contaminating the color of the adjacent cell. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a nozzle diameter of less than 120  $\mu\text{m}$  in the method of making a plasma display of Nanto and Iguchi with a reasonable expectation of success. One would have been motivated to do so in order to have prevented contamination of adjacent cells. Overlapping ranges are *prima facie* evidence of obviousness (see MPEP 2144.05.I.).

Nanto does not explicitly teach that the continuous flow of phosphor paste is accomplished via a continuous application of a pressure. However, the Examiner takes Official Notice that it was well known in the art of spraying to have applied pressure to eject a solution from a nozzle (see, e.g., Yoshida, col. 3, lines 28-32 and col. 3, line 64-col. 4, line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have continuously discharged the phosphor paste of Nanto and Iguchi by applying a continuous pressure with a reasonable expectation of success because such a method of spraying was well known to be operable in the art. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

### ***Response to Arguments***

6. Applicant's arguments filed 8/20/2007 have been fully considered but they are not persuasive.

Claims 158-160 as rejected over Iguchi '019:

The Applicant argues on pg. 7 that it is anything but obvious to attempt to employ 640 to 2000 outlet holes in the face of the disclosure of a single nozzle in view of the Applicant's demonstration of unexpected results using multiple outlet holes that is free of the "striping" effect. However, the claims are not commensurate in scope with the unexpected results because the claims do not require that the phosphor paste is discharged into all of the spaces to be coated with the phosphor paste for a particular color between the barrier ribs during a one time relative movement.

The Applicant argues on pg. 7-8 that the ink-jet method of Iguchi is an intermittent ejection of ink droplets as opposed to a continuous discharge, as required by the current claims. However, Nanto '527 and Yoshiba 545 have been added to the grounds of rejection to address the newly added limitations.

### *Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.


Art Unit: 1762

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JL

JL

  
**TIMOTHY MEEKS**  
SUPERVISORY PATENT EXAMINER